Abstracts

Open- and short-circuit terminated series stubs in finite-width coplanar waveguide on silicon

G.E. Ponchak and L.P.B. Katehi. "Open- and short-circuit terminated series stubs in finite-width coplanar waveguide on silicon." 1997 Transactions on Microwave Theory and Techniques 45.6 (Jun. 1997 [T-MTT]): 970-976.

Open- and short-circuit terminated series stubs in finite-width coplanar waveguide (FCPW) fabricated on high-resistivity Si are experimentally characterized over the frequency range of 2-40 GHz. In coplanar waveguide (CPW), these stubs are typically placed in the center conductor, but in FCPW, the stubs may also be placed in the ground planes resulting in novel circuit elements with characteristics that make the stubs useful for matching circuits and filters. Equivalent circuit models for the stubs are presented, and it is shown that when the stub is in the ground plane the resonant frequency is equal, the inductance and resistance is halved, and the capacitance is double the values of the same stub in the center conductor. Furthermore, it is shown that by varying the stub position in the ground plane, higher Q stubs can be obtained.

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